



Weather extremes

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Making conclusions from limited observation is a common error among many.

To say that “I saw this happen” therefore “that must be true” is usually a fallacy. Having enough data to support a conclusion, or even a hypothesis, is crucial to the scientific method.

We have all heard about “global warming” and people regularly attribute this or that weather event to it. Your neighbour observes that it’s been too hot for gardening... it must be that global warming thing! One observation leads to one assumption. Not good science.

However, what if we were to look at all of 2011 (as an example) and examine weather events globally? We could even go back to include comparative data from a century or more ago. Would that be more valid? Of course it would.

Indeed, 2011 was a year of global weather extremes.

The global average temperature in 2011 was 14.5 degrees [all figures Celsius] making it the ninth warmest year in 132 years of record keeping. This is about 0.8 degrees warmer than in 1900.

Doesn’t sound like much, does it? But for each one degree rise, the atmosphere can hold an additional seven per cent more moisture. And higher temperatures can also fuel storms. 2011 was also the second wettest year over land in recorded history.

There has been a strong trend towards warming: each subsequent decade from 1970 has been hotter than the previous one. And nine of the 10 hottest years have occurred since 2000.

The average temperature is determined by several factors including solar activity and the status of the El Niño/La Niña phenomena. But it is the accumulation of heat-trapping gases in the atmosphere—largely from the burning of fossil fuels—that has become a dominant force, pushing global climate out of its normal range.

Using 2011 as an example of the trend, we can see that there were immense weather occurrences that we can link to warming temperatures. Brazil started the year with its deadliest natural disaster. A month’s worth of rain fell in one day in Rio de Janeiro state leading to floods and landslides. Flooding in Australia covered an area the size of France and Germany combined; it was the wettest year on record. And Thailand experienced flooding that caused \$45B of damage!

While some regions were wetter, others were dryer than even. In the US, seven states experienced the wettest years on record, while others saw drought and heat extremes. Heat, drought and wildfires raged across the US South Plains and Southwest; Wichita, Kansas experienced 100 days of higher than 100 degrees Fahrenheit, breaking a record from 1934 during the ‘Dust Bowl’ period.

All-time highs were set around the world: Armenia, China, Iran, Iraq and others all saw extremes of heat. In fact, Kuwait experienced the year’s highest temperature at a searing 53.3 degrees, the highest temperature ever recorded on Earth during the month of August.

Even the Arctic saw warmer temperatures with a record 2.2 degrees above the mean from 1951-80. Over the past 50

years, temperatures in the Arctic have increased more than twice as fast as the global average.

Our continued reliance on fossil fuels remains the single most threatening behaviour to global warming and the subsequent weather extremes. Only by implementing a rapid, dramatic reduction of greenhouse gas emissions can we hold back future temperature increases. If we don’t, the forecast rise in global temperatures is seven degrees by the end of the century. And if you thought the fallout from a mere 0.8 degree increase were serious, imagine if it were seven!

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